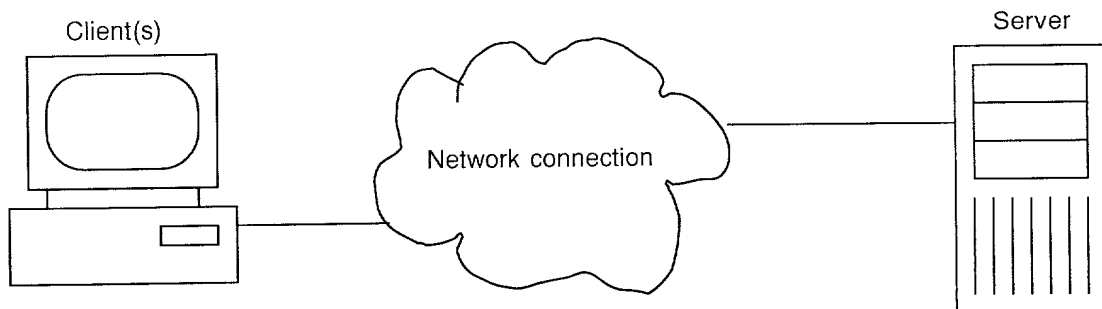


Preferred Embodiment  
Minimal configuration (Single Server)

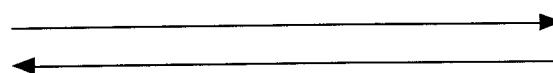
Fig. 0a



If valid cookie present, skip to step 3...

- |     |   |  |
|-----|---|--|
| (0) | Client retrieves disclaimer / registration, etc. page |  |
| (1) | Client submits acceptance / registration data, etc.   |  |
| (2) | Server replies with cookie data initialization        |  |
- 
- |      |   |                                   |
|------|---|-----------------------------------|
| (3)  | Client retrieves user interface for simulation, calculation, etc.         |                                   |
| (4)  | Client submits data for calculation: calculation data                     | (data saved)                      |
| (5)  | Server returns "Processing" message w/ emb. refresh + updated cookie data |                                   |
| (6)  | Client auto refresh to getresults.pl + new cookie data                    | (authenticate & check vs. limits) |
| (7a) | "Overuse" message   | if fail                           |
| (7b) | Results ( Any combo of markup, graphics and data )*                       | if succeed                        |

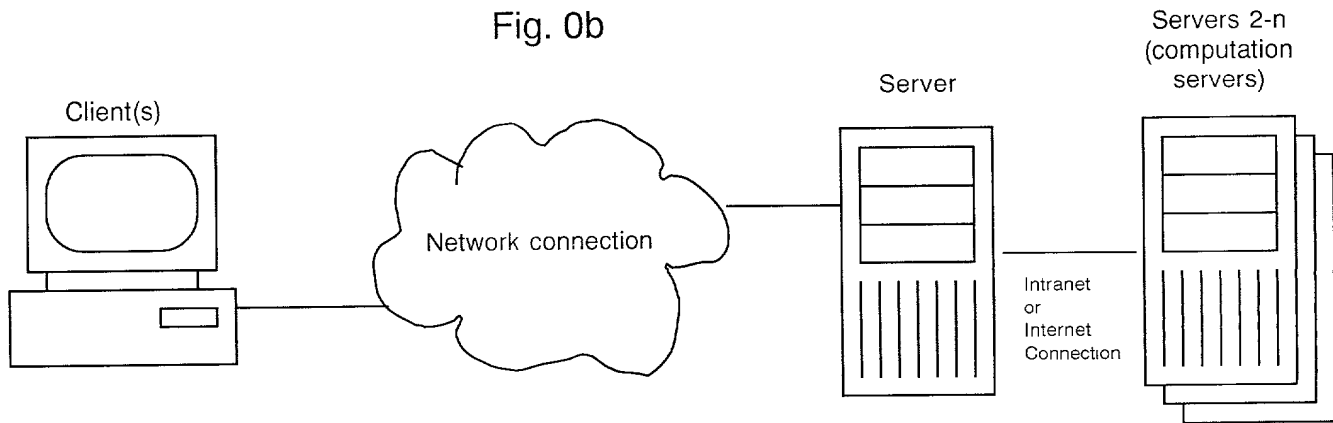
*In drawings 1-4 Client instigates data transfer,  
arrows indicate direction of transfer*



OPTIONAL VALIDATION DATABASE NOT SHOWN  
IS TYPICALLY COLOCATED WITH VALIDATION PROCESS,  
BUT CAN BE LOCATED ANYWHERE ON AN INTERNET OR INTRANET

# Internet Server combined with one or more Private Computation Servers

Fig. 0b



If valid cookie present, skip to step 3...

- (0) Client retrieves disclaimer / registration, etc. page  
 (1) Client submits acceptance / registration data, etc.  
 (2) Server replies with cookie data initialization

(3) Client retrieves user interface for simulation, calculation, etc.

(4) Client submits data for calculation: calculation data (data saved)

(5) Server returns "Processing" message w/ emb. refresh + updated cookie data

(6) Client auto refresh to getresults.pl + new cookie data (authenticate & check vs. limits)

(7a) "Overuse" message (if fail)

if succeed → compute  
 Choose server and send relevant data

Return raw data

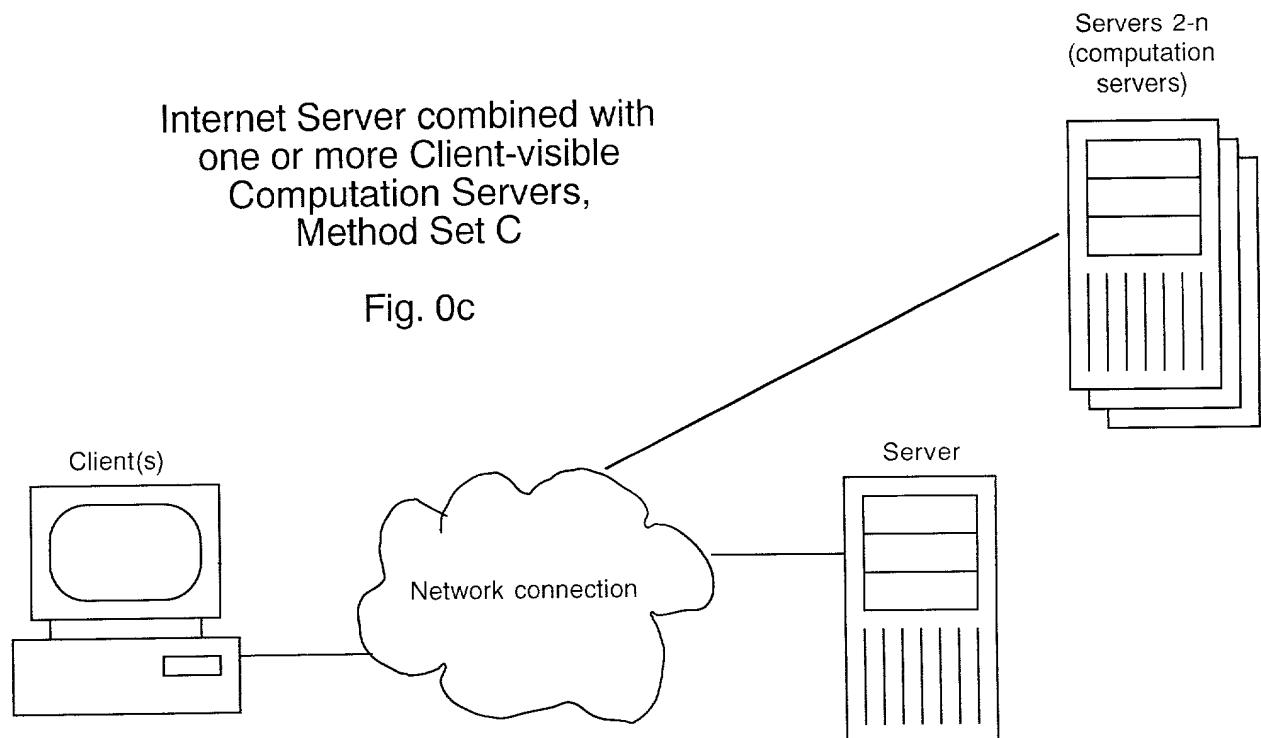
(7b) Results ( Any combo of markup, graphics and data )\*

(optional)  
 format raw data

OPTIONAL VALIDATION DATABASE NOT SHOWN  
 IS TYPICALLY COLOCATED WITH VALIDATION PROCESS.  
 BUT CAN BE LOCATED ANYWHERE ON AN INTERNET OR INTRANET

Internet Server combined with  
one or more Client-visible  
Computation Servers,  
Method Set C

Fig. 0c



If valid cookie present, skip to step 3...

- |     |   |   |
|-----|---|---|
| (0) | Client retrieves disclaimer / registration, etc. page | ← |
| (1) | Client submits acceptance / registration data, etc.   | → |
| (2) | Server replies with cookie data initialization        | ← |

(3) Client retrieves user interface for simulation, calculation, etc.

(4) Client submits data for calculation: calculation data (data saved)

(5) Server returns "Processing" message w/ emb. refresh + updated cookie data

(6) Client auto refresh to getresults.pl + new cookie data (authenticate & check vs. limits)

(7a) "Overuse" message

if fail  
if succeed → compute  
Choose server  
and send  
relevant data,  
forward client  
to computation  
server

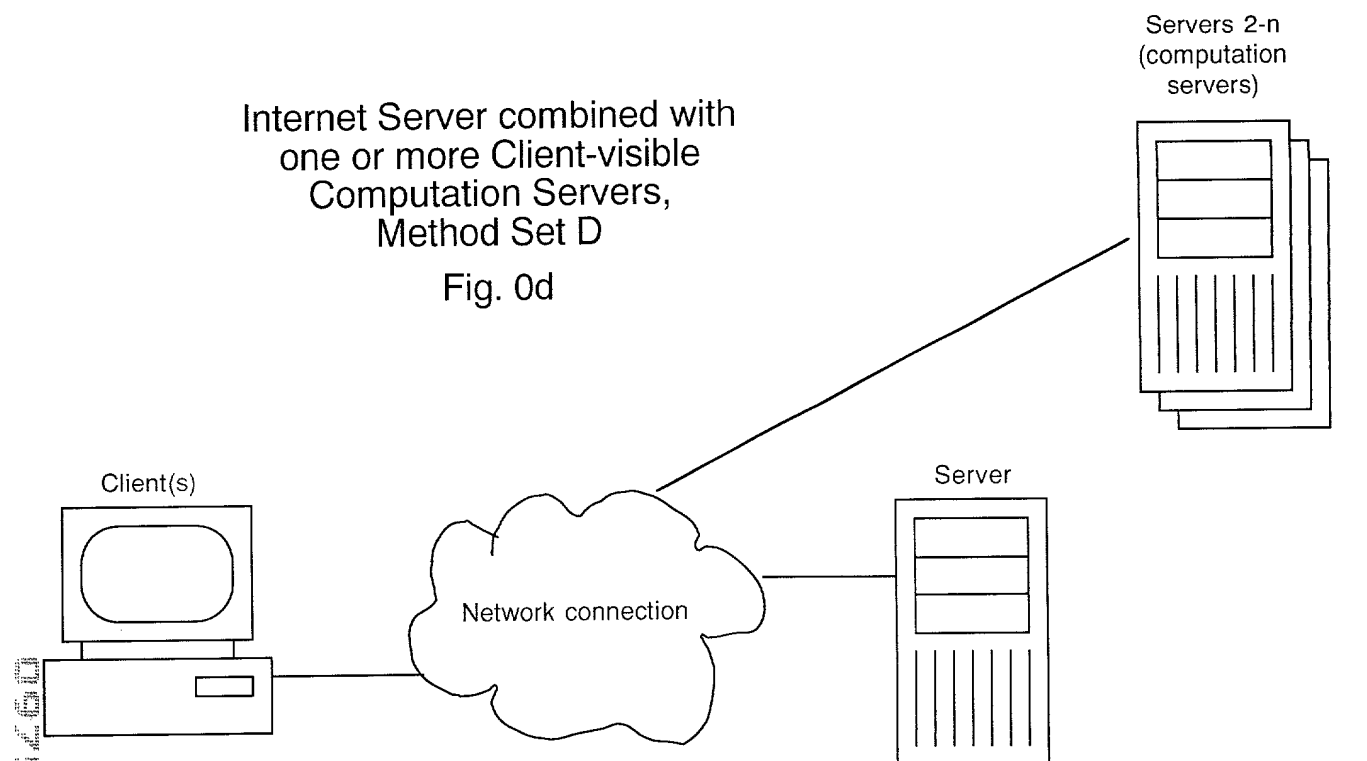
(7b) Results ( Any combo of markup, graphics and data )\*

and return  
results

OPTIONAL VALIDATION DATABASE NOT SHOWN  
IS TYPICALLY COLOCATED WITH VALIDATION PROCESS,  
BUT CAN BE LOCATED ANYWHERE ON AN INTERNET OR INTRANET

Internet Server combined with  
one or more Client-visible  
Computation Servers,  
Method Set D

Fig. 0d



If valid cookie present, skip to step 3...

- |     |   |   |
|-----|---|---|
| (0) | Client retrieves disclaimer / registration, etc. page | ← |
| (1) | Client submits acceptance / registration data, etc.   | → |
| (2) | Server replies with cookie data initialization        | ← |

(3) Client retrieves user interface for simulation, calculation, etc.

(4) Client submits data for calculation: calculation data (data saved)

(5) Server returns "Processing" message w/ emb. refresh + updated cookie data

(6) Client auto refresh to getresults.pl + new cookie data

Choose server  
and send  
relevant data,  
forward client  
to computation  
server

→ (authenticate &  
check vs. limits)

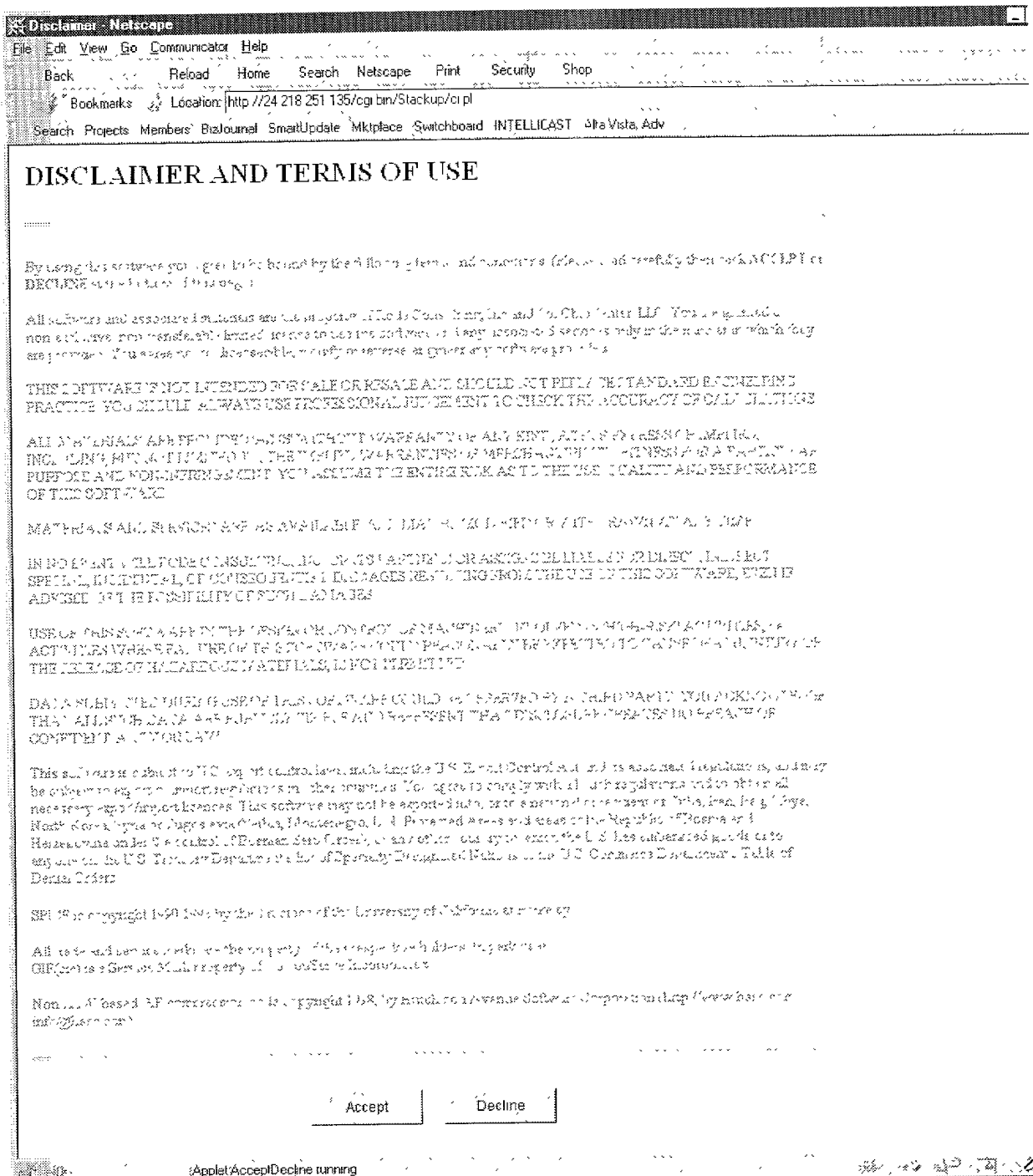
(7a) "Overuse" message

if fail

(7b) Results ( Any combo of markup, graphics and data )\*

if succeed,  
compute and  
return result

OPTIONAL VALIDATION DATABASE NOT SHOWN  
IS TYPICALLY COLOCATED WITH VALIDATION PROCESS,  
BUT CAN BE LOCATED ANYWHERE ON AN INTERNET OR INTRANET

Fig. 1  
D5

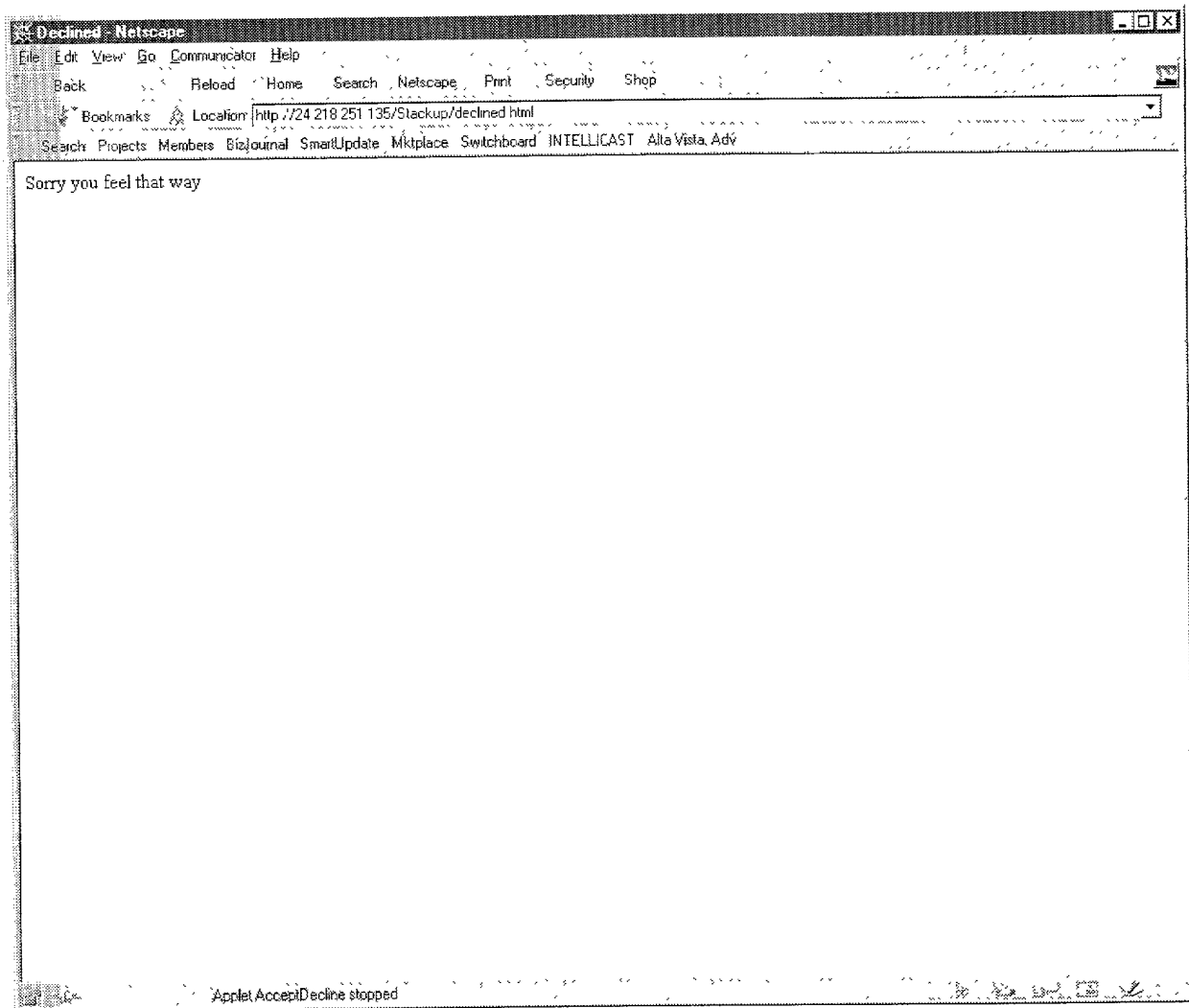
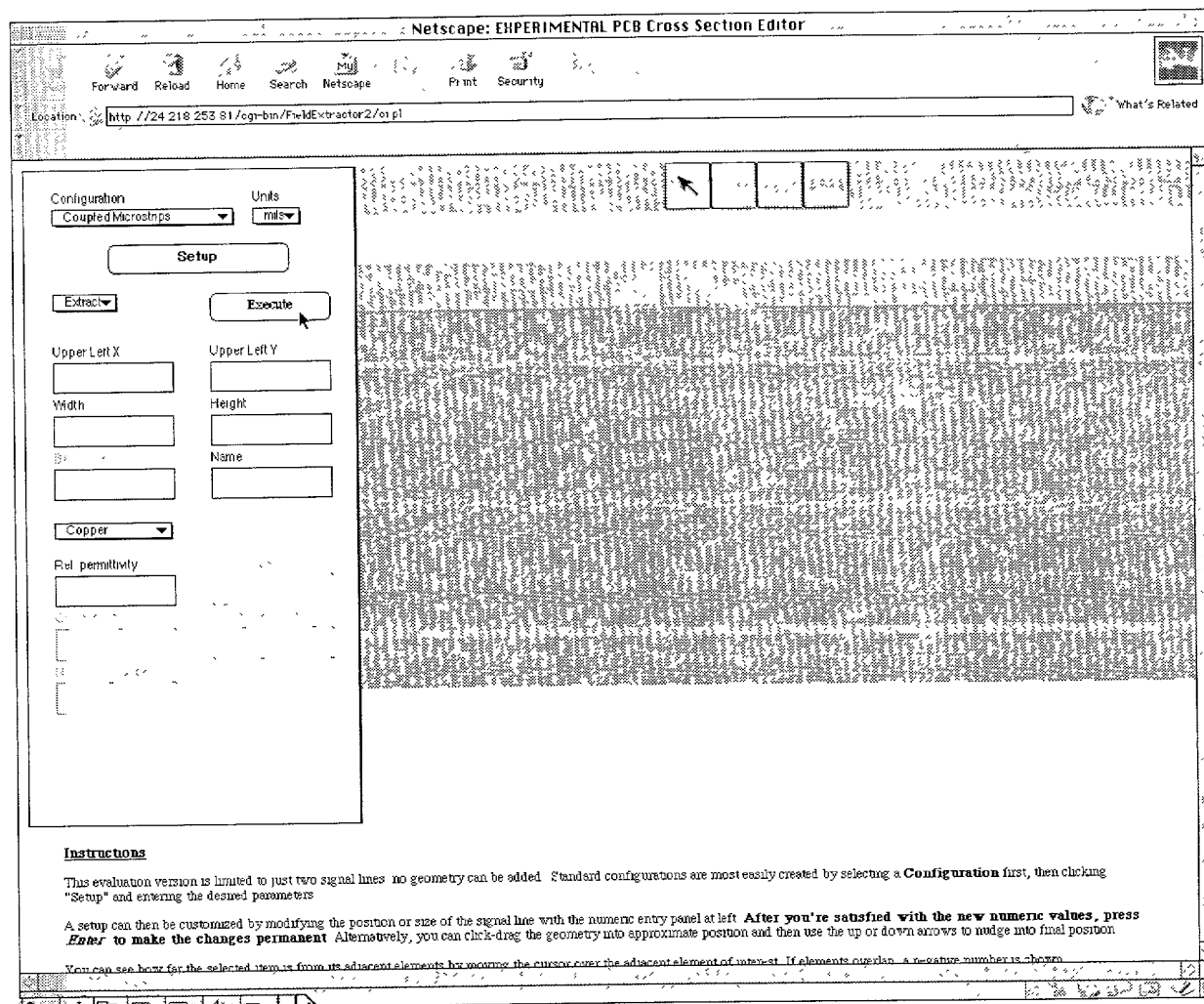


Fig. 2A  
D6

Fig. 2B  
D7

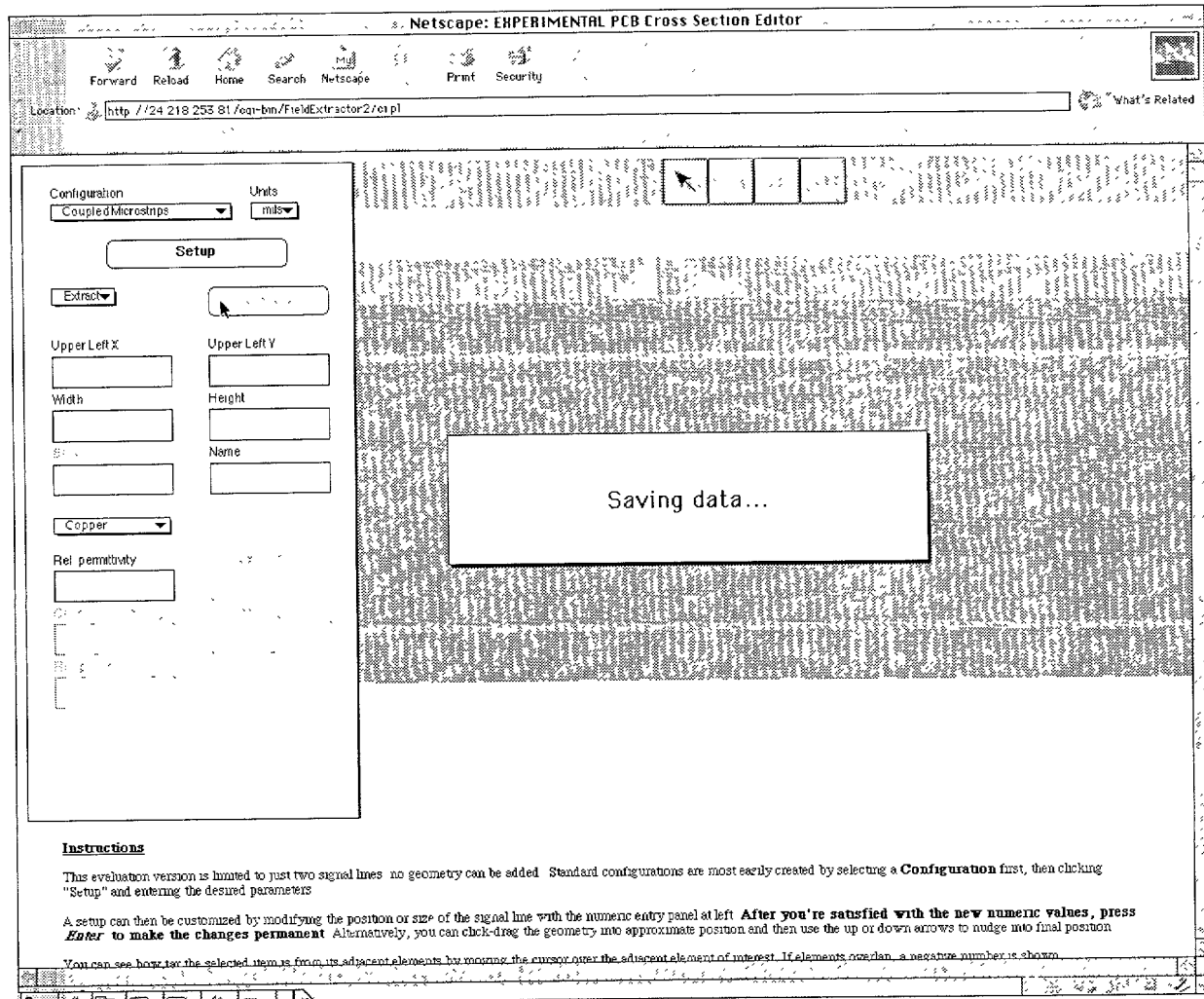


Fig. 3  
D8



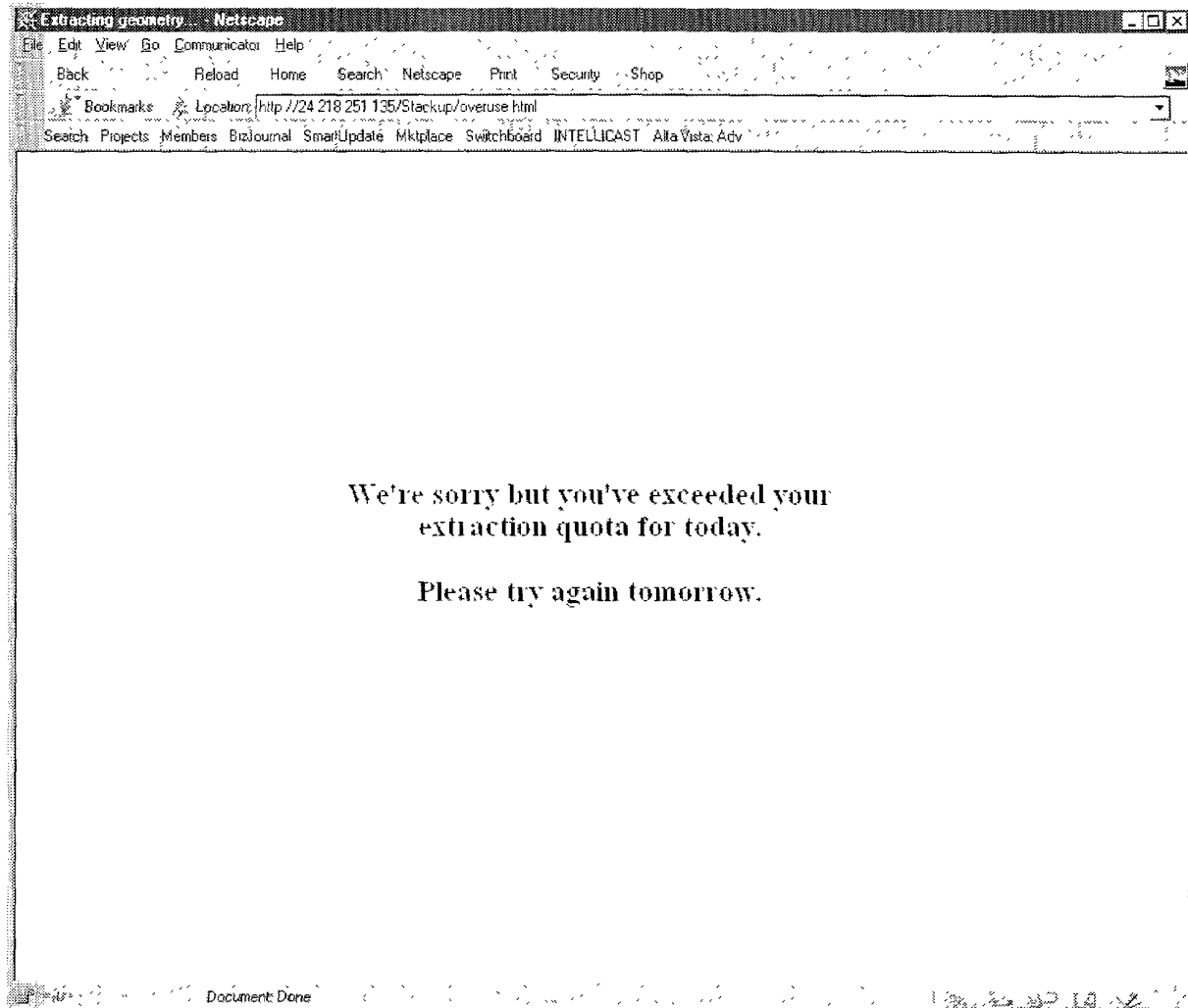


Fig. 4A  
D9

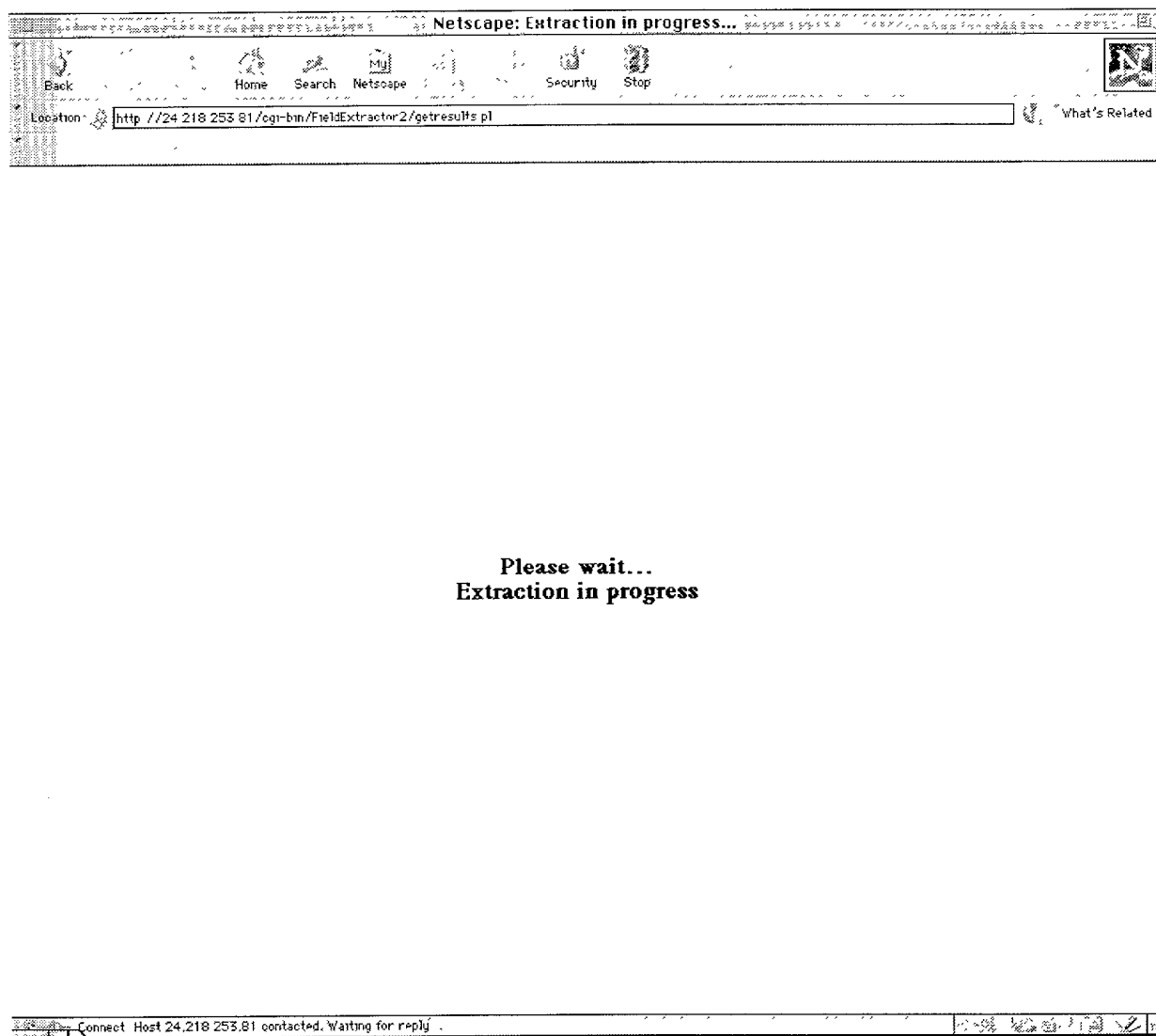
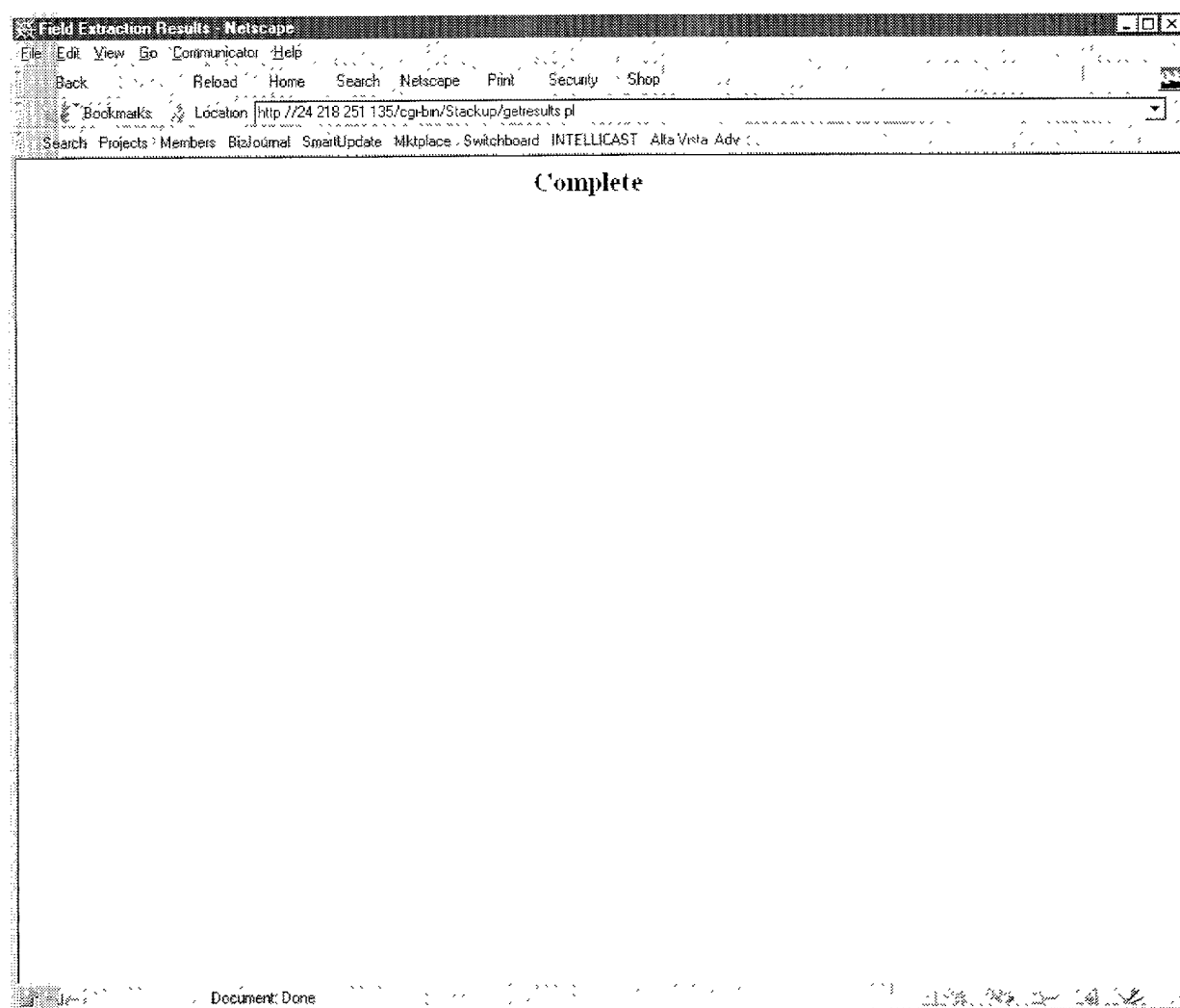


Fig 4B  
D10

Fig 5  
D11